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Application Number: 10/823,847

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Dear Nguyễn N. Hanh:

My application number: 10/823,847

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Thank you for your letter on Mar 01,2005; it lets me know how I should describe my invention to give it a better view for others. I amend all my two claims, which are enclosed with this letter in separated sheets. I also amend the original Specification(filed on Apr. 14,2004) with the amendment instructions.

My design (10/823,847)-the mike 8001 induction motor design- is a improved hermetic refrigeration (or A/C) system (shown as my FIG.4) to make it more reliable, leak free, easy to build and in this way, the system can be built in a capacity as large as an open refrigeration (or A/C) system is. Because only the motor (not the refrigerant compressor) has been redesigned so I call it the "Mike 8001 induction motor design". The refrigeration (A/C) system design mentioned here is a a/c (or refrigerator) system that can be used to cool a room, a building, a walk in refrigerator... etc. It could be a small or very big one.

The Shoykhet, Boris A. (6,129,477) design is related to a heat isolating shell in a superconductor design motor. The refrigeration system he mentioned in his design is the one to cool the superconductor winding in his motor only, not for anything else. (Socket's paper Fig 1).

The mike 8001 induction motor design is to reposition the original dome in hermetic (or semi hermetic) refrigeration (or a/c) system

inside the motor(my FIG.4, compare my FIG.4 to FIG.3), not a added shell in super conductor motor. The function of the shell in Shoykhet's design is only to obstruct the heat transfer between rotor part and super conductor winding.

The shell in Shoykhet's design may form a closed space but it will not be like the dome in a hermetic system which is completely sealed and can hold high press gas inside.

The shell in Shoykhet's design is not designed for acting like a dome in hermetic system, it is a heat isolating device to obstruct heat transfer between rotor and super conductor winding. My mike 8001 design is a repositioned dome of hermetic (or semi hermetic) system, the new dome acts just like original dome but it also separates the electrical winding from the refrigerant so refrigerant will not get burned if electric winding gets short circuit.

The functions of the original dome in hermetic (or semi hermetic) refrigeration (or a/c) system:

- 1, to mechanically hold motor and compressor together,
- 2, to seal the refrigerant inside the dome.

The functions of my new designed dome (mike 8001,8001-1 design):

- 1, to mechanically hold the motor stator and rotor and compressor together,(in the original dome design, the motor stator and rotor are held by motor case)
- 2,to seal the refrigerant inside the dome,
- 3, to separate the refrigerant from electrical winding to prevent refrigerant from getting burned by short circuit in winding.

The material of new dome is most likely nonmagnetic metal which is a good heat conductor. This is different from the material of the shell in Shoykhet's design. The shell in his design is to obstruct heat transfer. In mine 8001 design, the stator pole go through the dome to face the rotor directly, there is nothing between the stator pole and rotor, heat transfer is not isolated. The shell in Shoykhet's design is put between stator pole and rotor.

More details of the differences between my Claim 1 and Shoykhet design:

A: difference in stator pole, difference in heat transfer:

My design: The end of each stator pole goes through the dome and faces the rotor directly. There is nothing between the end of stator poles and rotor. The heat in rotor area can easily go through stator pole to stator body and electric winding. The distance between the end of stator pole and rotor is the same as before. Motor efficiency will not be reduced.

Shoykhet design: The end of stator pole didn't go through the shell. The distance between the end of the stator pole and rotor will be increased to accommodate the shell. The heat in rotor area is isolated from the winding by the shell. This part of design will decrease the motor efficiency. It is not the same design as mine. (But the loss of efficiency may be compensate a bit by the superconductor design but also it need more energy for his refrigeration system to cool the winding, this may decrease the efficiency of the whole design again.)

B: difference about the laminated stator structure:

My design: Those gaps between the laminated stator pieces should be sealed to prevent gas (or refrigerant) leak through them. Most likely those stator pieces are welded together (or any other way to seal the gaps and bond two part together to prevent leak and to hold stator laminated pieces together) with the solder which can reduce the Eddy current in stator.

Shoykhet's design: It doesn't need the gaps of laminated stator pieces sealed.

C: what is enclosed in the shell (or dome):

My design: The dome encloses rotor, compressor and refrigerant inside (My FIG.4). The dome is a completely sealed space that can hold high pressure gas.

Shoykhet's design: The shell only encloses the rotor inside. It may form a closed space but not a completely sealed one, it can't hold high pressure gas.

D: mechanic structure view of the shell (dome):

My design: The dome is a major motor structure. It holds the stator and rotor, along with compressor together. Without the dome, the whole motor will fall apart. The dome is a completely sealed space which can hold high-

pressure gas. Most likely it is made by nonmagnetic metal. (Especially for the part of dome that surround the rotor and between the stator poles. In this way, the magnetic flux pattern in the motor will not be changed.)

Shoykhet's design: the shell is an object to obstruct heat transfer between rotor and electrical winding. It is not a major structure to hold motor parts together.

E: difference in material used, difference in heat transfer:

My design: The material of my new design dome is most likely nonmagnetic metal which is a good heat conductor. My new design dome is to separate refrigerant from the electric winding to prevent refrigerant get burned by short circuit in electric winding.

Shoykhet's design: the material of the shell in his design is not a good heat conductor. The shell is to obstruct heat transfer between rotor and superconductor winding.

Shoykhet's design gets nothing to do with a hermetic(or semi hermetic) refrigeration (or a/c) system, his design get something to do with the super conductor motor.

F: space between stator pole and rotor:

My design: There is nothing between stator pole and rotor. Stator poles go through the dome to face rotor directly. The distance between stator pole and rotor is the same as that in a traditional motor. Motor efficiency is not reduced by my new dome design.

Shoykhet's design: There is the shell between the stator pole and rotor. The distance between the stator pole and rotor is increased to accommodate the shell. This will reduce the motor efficiency.

More details of difference between my Claim 2 and other people's design:

My design: My detachable stator design (Mike 8002) once moved, the end of those stator poles will stay with the dome. They are fixed to the dome to seal the dome space. There is a cut in each stator pole so we can move the outer part of the stator away. This design (mike 8002 only, not the mike 8001 design) will decrease the efficiency of the motor due to the gap caused by cutting in every stator pole.

Others' designs: Other's design will move the whole stator out of its original place, no part of stator is left behind (They didn't cut the stator poles.).

Both Shoykhet design (6,129,477) and Renard et al (3,904,901) design are related to heat isolate shell in superconductor motor. It is not the same design as my Claim 1.

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The Tucker, Richard S design(5,873,710) is the spacer in the dome of hermetic system to fix the motor and compressor in place. It is not the same design as my Claim 1.

The Shervington et al. design(5,017,821) didn't cut the stator poles, It is not the same design as my Claim 2.

Chen, Yue-Chung

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May 21, 2005